



US006441803B1

(12) **United States Patent**
Kasahara et al.

(10) **Patent No.:** **US 6,441,803 B1**
(45) **Date of Patent:** ***Aug. 27, 2002**

(54) **DISPLAY DEVICE AND LUMINANCE
CONTROL METHOD THEREFOR**

(75) **Inventors:** **Mitsuhiko Kasahara, Hirakata; Yuichi
Ishikawa, Ibaraki; Tomoko Morita,
Hirakata, all of (JP)**

(73) **Assignee:** **Matsushita Electric Industrial Co.,
Ltd., Osaka (JP)**

(*) **Notice:** **Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.**

This patent is subject to a terminal dis-
claimer.

(21) **Appl. No.:** **09/994,794**

(22) **Filed:** **Nov. 28, 2001**

Related U.S. Application Data

(62) **Division of application No. 09/856,161, filed as application
No. PCT/JP00/06212 on Sep. 11, 2000.**

(30) **Foreign Application Priority Data**

Oct. 4, 1999 (JP) 11-283228

(51) **Int. Cl.⁷** **G09G 3/28**

(52) **U.S. Cl.** **345/63; 345/690; 345/211**

(58) **Field of Search** **345/60, 63, 204,
345/589, 690, 211**

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,748,171 A * 5/1998 Ishizaki et al. 345/101
6,023,130 A * 2/2000 Sakasegawa et al. 313/582
6,133,682 A * 10/2000 Murai et al. 313/403
6,191,505 B1 2/2001 Matsuyama
6,270,061 B1 8/2001 Bouquet et al.
6,288,495 B1 * 9/2001 Yashiro 315/169.1
6,313,821 B1 * 11/2001 Mizuno 345/101
6,320,568 B1 * 11/2001 Zavracky 345/101
6,331,843 B1 * 12/2001 Kasahara et al. 345/60

FOREIGN PATENT DOCUMENTS

JP	6282241	10/1994
JP	9-6283	1/1997
JP	9198005	7/1997
JP	9-288467	11/1997
JP	10215424	8/1998
JP	11-194745	7/1999
JP	11212517	8/1999
JP	11-231828	8/1999
JP	11-288244	10/1999
JP	11-283228	10/2001
JP	2001200087	10/2001

OTHER PUBLICATIONS

An English Language abstract of JP 6-282241.
An English Language abstract of JP 9-6283.
An English Language abstract of JP 9-198005.
An English Language abstract of JP 10-215424.
An English Language abstract of JP 11-194745.
An English Language abstract of JP 11-288244.
An English Language abstract of JP 11-231828.
An English Language abstract of JP 9-288467.
An English Language abstract of JP 11-212517.
ITE '98: 1998 ITE Annual Convention, along with a partial
English Translation.

* cited by examiner

Primary Examiner—Kent Chang

(74) *Attorney, Agent, or Firm*—Greenblum & Bernstein
P.L.C.

(57) **ABSTRACT**

A temperature difference estimated value is found from a
video signal using a temperature estimated value represent-
ing the temperature of the panel outer periphery of a display
screen of a PDP and a reference value representing the
temperature of the panel outer periphery of the PDP which
is outputted from a panel periphery temperature setter by a
temperature difference estimator, and the luminance of an
image displayed on a display is controlled depending on the
temperature difference estimated value by a controller and a
brightness controller.

8 Claims, 18 Drawing Sheets

